

CLAIMS

1. Wiper blade (20) with a connecting part (32) which is mounted on a carrying element (24) of the wiper blade (20) and has a pivot pin (42, 96, 106, 138, 146, 164, 178) of a joint (30) whose free end is connected to a wiper rod (28, 70, 80, 90, 118, 136, 150), characterized in that the joint (30) includes a cap (54, 114, 128, 160, 190) which covers and is attached to the connecting part (32) and in the installed position it secures the wiper blade (20) and the wiper rod (28, 70, 80, 90, 118, 136, 150) during operation.

2. Wiper blade (20) according to Claim 1, characterized in that the cap (54, 114, 128, 160) has a pocket (62, 76, 84, 122, 126, 164) facing the wiper rod (28, 70, 80, 90, 118, 136, 150), said pocket being open toward the windshield and toward the wiper rod (28, 70, 80, 90, 118, 136, 150) in the longitudinal direction thereof and extending beyond it laterally.

3. Wiper blade (20) according to one of the preceding claims, characterized in that a spoiler (26) is attached to the carrying element (24) in the longitudinal direction on both sides of the connecting part (32), the cap (54, 114, 128, 160, 190) being connected to the parts of the spoiler with a connecting profile (64).

4. Wiper blade (20) according to Claim 3, characterized in that the oncoming flow side of the spoiler (26) is facing the wiper rod (28).

5. Wiper blade (20) according to one of the preceding claims, characterized in that the pivot pin (42, 96, 106, 138, 178) is rotatably mounted in the connecting part (34), which is designed as a sheet metal claw (32) and is attached to the carrying element (24) by means of catch noses (36) mounted laterally on its back (34).

6. Wiper blade (20) according to Claim 5, characterized in that the sheet metal claw (32) has side faces (38) standing upward on its longitudinal sides (66), said faces being connected by a bearing tube (40) in which the pivot pin (42, 96, 106, 138, 178) is rotatably mounted (Fig. 2).

7. Wiper blade (20) according to one of Claims 5 or 6, characterized in that the cap (54, 114, 128, 160, 190) is held on the sheet metal claw (32) by means of catch noses (56), which engage in catch recesses (104) in the side faces (38) of the sheet metal claw (32) (Fig. 11).

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8. Wiper blade (20) according to one of Claims 6 or 7, characterized in that the cap (54, 114, 128, 160, 190) has a clip (58) in the area of the bearing tube (42) with which it is attached to the bearing tube (40) or the pivot pin (164).

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9. Wiper blade (20) according to one of Claims 6 through 8, characterized in that the pivot pin (42, 96, 106, 138, 146, 164, 190) protrudes on one end beyond a side face (38) of the sheet metal claw (32) and is attached to the wiper rod (28, 70, 80, 90, 118, 136) in a rotationally fixed manner, while its other end protrudes slightly beyond the respective side face (38) and engages in a recess in the cap (54, 114, 128, 160, 190) (Fig. 2, Fig. 3 and Fig. 24).

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10. Wiper blade (20) according to one of the preceding claims, characterized in that the wiper rod (28, 70, 80, 90, 118) is extended beyond the pivot pin (42, 96), and with its extended part, it engages in a pocket (62, 76, 84, 122) or on a guide pin (116) of the cap (54, 114) (Fig. 1 through Fig. 11).

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11. Wiper blade (20) according to Claim 10, characterized in that the protruding part of the wiper rod (28, 70, 80, 118) is bent toward the rubber profile (22).

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12. Wiper blade (20) according to one of the preceding claims, characterized in that the wiper blade (80, 136, 150) runs beneath the pivot pin (42, 106, 138, 146, 164) and above the rubber profile (22).

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13. Wiper blade (20) according to one of the preceding claims, characterized in that the pivot pin (42, 96, 106, 138) is attached to the wiper rod (28) by means of a weld (74) (Fig. 4 through Fig. 6 and Fig. 11, Fig. 12).

14. Wiper blade (20) according to one of Claims 1 through 12, characterized in that the pivot pin (42, 178) has a head (44) in the direction of the wiper rod (28, 118), said head having a slot (46) to accommodate the wiper rod (28, 118) which is secured in the slot (46) by means of a cross pin (48) (Fig. 1, Fig. 10, Fig. 20).

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15. Wiper blade (20) according to one of Claims 1 through 12, characterized in that the wiper blade (90) is rotated by approximately 90° about its longitudinal axis at its end which faces the pivot pin (96) so that its broad side runs across the pivot pin (96) (Fig. 8, Fig. 21).

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16. Wiper blade (20) according to Claim 15, characterized in that the pivot pin (96) is in contact with the wiper rod (90) with a collar (98) at its end, said rod pressing against a flanged seat (100) which is connected to the collar and being secured by a washer (102) (Fig. 8, Fig. 9).

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17. Wiper blade (20) according to one of Claims 15 or 16, characterized in that the wiper rod (90) has a bevel (94) towards the rubber profile (22) on the end which protrudes beyond the pivot pin (96), with the beveled part engaging in a pocket (122) of the cap (54) in its operating position.

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18. Wiper blade (20) according to one of Claims 1 through 14, characterized in that the cap (114) has a guide pin (116) laterally to the wiper rod (118), engaging in the end of wiper rod (118) which is designed as a fork (112) (Fig. 10, Fig. 11).

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19. Wiper blade (20) according to one of the preceding claims, characterized in that the pocket (126) of the cap (128) is arranged between the pivot pin (42, 138) and the end of the wiper rod (80, 136) on the rod end and extends beyond it laterally (Fig. 12 through Fig. 14).

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20. Wiper blade (20) according to one of the preceding claims, characterized in that the pivot pin (138) has a flat head (140) with two rivet holes (142) facing the wiper blade and riveted by rivets (144) to the wiper rod (136) (Fig. 15).

21. Wiper blade (20) according to one of the preceding claims, characterized in that the pivot pin (106) has a flat head (108) with a polygon (110) which extends laterally being integrally molded on the head and being pressed into a fitting opening in the wiper rod (136) with its protruding part being wobble riveted (Fig. 18).

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22. Wiper blade (20) according to one of the preceding claims, characterized in that the pivot pin (178) has two diametrically opposed wings (180, 182) extending radially to the pivot pin (178) and in the longitudinal direction of the wiper blade (28, 90) and engaging in the installed state in correspondingly aligned lateral pockets (184, 186) of the cap (190) in the manner of a bayonet closure (Fig. 19 through Fig. 21).

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23. Wiper blade (20) according to one of the preceding claims, characterized in that the pivot pin (146) which has an out-of-round cross-sectional profile is held in corresponding openings in the side faces (38) in a rotationally fixed manner in the sheet metal claw (32), with a correspondingly bent end (152) of the wiper rod (150) being pivotably mounted on its part which protrudes toward the wiper rod (150) and being guided in a bearing pocket (162) of the cap (160).

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24. Wiper blade (20) according to Claim 23, characterized in that the pivot pin (146) has a half-round profile with a flattened area (148) facing the rubber profile (22) and is held in corresponding openings in the side faces (38) in the sheet metal claw (32) in a rotationally fixed manner with a bearing bushing (154) having a fitted cylindrical area (156), and the flattened area (158) is mounted in a rotationally fixed manner on the part which protrudes toward the wiper rod (150), the correspondingly bent end (152) of the wiper rod (150) being pivotably mounted on this bearing bushing (Fig. 24).

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25. Wiper blade (20) according to Claim 23, characterized in that the pivot pin (146) engages at its free end in a recess (176) in a side wall of the bearing pocket (162).

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26. Wiper blade (20) according to one of Claims 23 or 25, characterized in that the pivot pin (164) has a bearing area (172) between two axial collars (174) on which the bent part (152) of the wiper rod (150) is mounted and has a fastening area (156) with a rectangular cross-sectional profile and a longitudinal slot (158) which has catch noses (170) on the outsides of its ends with which it engages in a corresponding opening in the respective side face (38)(Fig. 25 and Fig. 26).

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